Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics


# Electrocatalytic activity of nanoporous Pd and Pt: effect of structural features

Jun Ho Shim[1], Youn Soo Kim, Minkyung Kang, Chongmok Lee*, and Youngmi Lee*

Department of Chemistry and Nano Science, Ewha Womans University, Seoul 120-750, Korea

* Co-corresponding authors: (Fax) +82-2-3277-2384, (E-mail) cmlee@ewha.ac.kr; youngmilee@ewha.ac.kr

[1]Present Address: Department of Chemistry, Daegu University, Gyeongsan 712-714, Korea

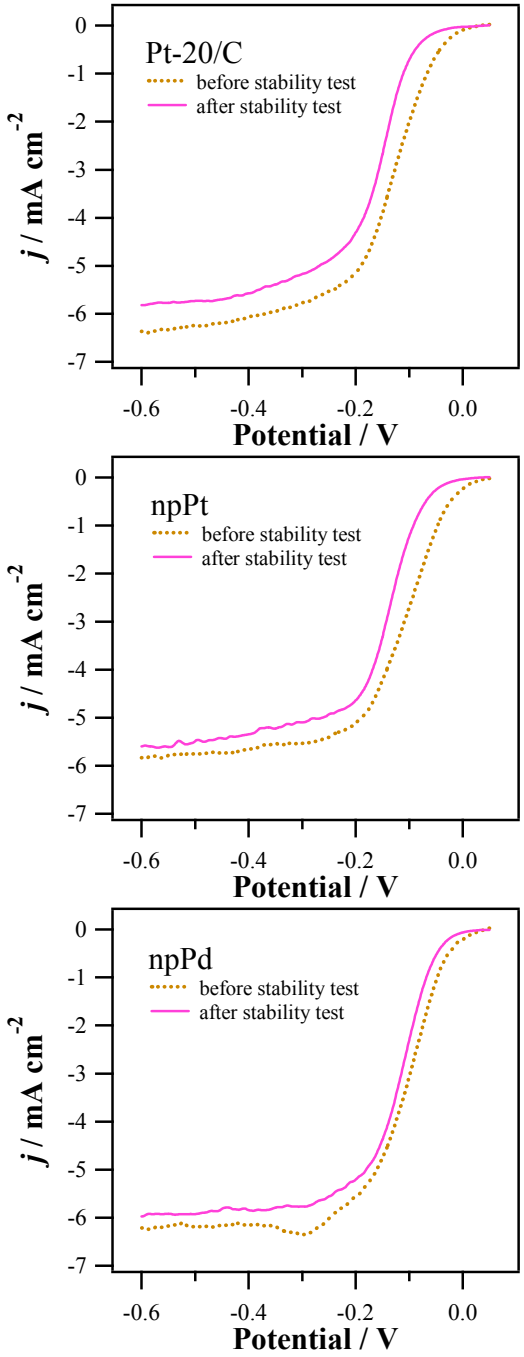


**Fig. S1.** RDE voltammetry curves obtained for the ORR before and after 1000 repetitive RDE runs in an $O_2$-saturated 0.1 M NaOH solution using Pt-20/C, npPt and npPd electrodes (scan rate of 10 mV $s^{-1}$, rotation speed of 2500 rpm).

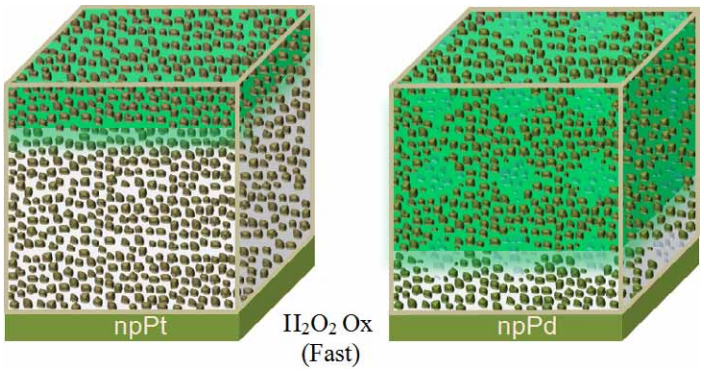


**Fig. S2.** Schematic view of npPt and npPd for less sluggish $H_2O_2$ oxidation. npPt uses rather shallow region of the deposited layer close to the solution due to the hindered mass transport through the nanopores. In contrast, npPd utilizes the metal layer up to greater depth due to more facilitated $H_2O_2$ transport through the macropores interconnecting the nanopores.